WE CLAIM:

~~CLAIMS~~

1. Latent heat storage body (1, 17, 28, 30, 31, 32) having a paraffin-based latent heat storage material (6), characterized in that the latent heat storage body contains a hygroscopic material.

2. Latent heat storage body (1, 17, 28, 30, 31, 32) according to Claim 1 or in particular according thereto, characterized in that the latent heat storage body (1, 17, 28, 30, 31, 32) is held in a sheath (2') which is permeable to vapour diffusion.

3. Latent heat storage body (1, 17, 28, 30, 31, 32) according to Claim 1 or in particular according thereto, characterized in that the latent heat storage body (1, 17, 28, 30, 31, 32) is held in a sheath (2) which is impermeable to vapour diffusion.

4. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the hygroscopic material (7) is held in a sheath which is permeable to vapour diffusion.

5. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the latent heat storage material (6) has capillary spaces which open up paths to the hygroscopic material (7).

6. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the hygroscopic material (7) is disposed in distributed manner in the latent heat storage body (1, 17, 28, 30, 31, 32).

7. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the hygroscopic material (7) is

5% or less by mass of the latent heat storage body (1, 17, 28, 30, 31, 32).

8. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that hygroscopic material (7) of differing efficiency is contained in the latent heat storage body (1, 17, 28, 30, 31, 32).

9. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the latent heat storage body (1, 17, 28, 30, 31, 32) has a carrier material with capillary-like holding spaces which hold latent heat storage material (6).

10. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the latent heat storage body contains a number of individual support-material bodies (5).

11. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the individual support-material body (5) is in platelet-like or grain-like form.

12. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the hygroscopic material (7) is provided in the form of grains or granules.

13. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the hygroscopic material (7) is provided as a powder.

14. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding

claims or in particular according thereto, characterized in that the hygroscopic material (7) is disposed on an individual support-material body (5).

15. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the individual support-material body (5) and the sheath (2, 2') are disposed spaced-apart by a gas-containing space.

16. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that a distribution body (24) extends in two and/or three dimensions in the latent heat storage body (1, 17, 28, 30, 31, 32), the distribution body having capillary spaces which open up paths to the hygroscopic material (7).

17. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that hygroscopic material (7) is provided on the distribution body (24).

18. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the distribution body (24) is formed from a hygroscopic material (7).

19. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the sheath (2, 2') of the latent heat storage body (1, 17, 28, 30, 31, 32) has a closeable opening (18).

20. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the distribution body (24) extends from the closeable opening (18) in the sheath

(2, 2') into the latent heat storage body (1, 17, 28, 30, 31, 32).

21. Latent heat storage body (1, 17, 28, 30, 31, 32) according to one or more of the preceding claims or in particular according thereto, characterized in that the latent heat storage material (6) contains a viscosity-increasing additive.

22. Method for producing a latent heat storage body (1, 17, 28, 30, 31, 32) with paraffin-based latent heat storage material (6) held in a carrier material which has holding spaces, in which method the latent heat storage material (6) is liquefied and is supplied in liquefied form to capillary-like holding spaces in the carrier material which suck in automatically, characterized in that the liquefied latent heat storage material (6) is supplied to a plurality of individual support-material bodies (5) of a latent heat storage body (1, 17, 28, 30, 31, 32).

23. Method according to Claim 22 or in particular according thereto, characterized in that a hygroscopic material (7) is applied to a surface of the carrier material.

24. Method according to one or both of Claims 22 and 23 or in particular according thereto, characterized in that the hygroscopic material (7) is applied to the surface of the carrier material after the liquefied latent heat storage material (6) has been supplied to the automatically sucking, capillary-like holding spaces in the carrier material.

25. Method according to one or more of Claims 22 to 24 or in particular according thereto, characterized in that a hygroscopic material (7) which is in the form of grains and/or granules and/or powder and/or flakes is used.

26. Method according to one or more of Claims 22 to 25 or in particular thereto, characterized in that the carrier material used is material in the form of grains and/or granules and/or flakes.

27. Method according to one or more of Claims 22 to 26 or in particular according thereto, characterized in that the carrier material used is a nonwoven.

28. Method according to one or more of Claims 22 to 27 or in particular according thereto, characterized in that the carrier material is used in a platelet-like form.

29. Method according to the preamble of Claim 22, characterized in that a hygroscopic material (7) is applied to a surface of the carrier material.

30. Method according to Claim 29 or in particular according thereto, characterized by one or more features from Claims 24 to 28.

31. Method for heating a solid or liquid heat storage material which on its own cannot be heated by microwave radiation or can be heated to a lesser extent than water, characterized in that a hygroscopic material (7) is added to the heat storage material for heat exchange with the heat storage material in a quantitative proportion according to which, starting from a moisture equilibrium of the hygroscopic material (7) at 50% relative atmospheric humidity and 20°C, an amount of 500 grams of the heat storage material is heated by at least 50°C starting from 20°C when exposed to microwave radiation with a power of 400 to 600 watts over a period of from 2 to 10 minutes, and in that irradiation of the hygroscopic material (7) with microwave radiation is effected.

32. Method according to Claim 31 or in particular according thereto, characterized in that a heat storage material which is permeable to microwave radiation (11, 65, 65') is used.

33. Method according to one or both of Claims 31 and 32 or in particular according thereto, characterized in that a hygroscopic material (7) is used whose hygroscopic property is not changed by heating caused by microwave radiation (11, 65, 65').

34. Method according to one or more of Claims 31 to 33 or in particular according thereto, characterized in that the hygroscopic material (7) is disposed in sandwich form between two panel-like heat storage elements (34, 34').

35. Method according to one or more of Claims 31 to 34 or in particular according thereto, characterized in that cavities (39) are provided in a panel-like heat storage element (34, 34'), the cavities (39) extending continuously between a surface (40) of the heat storage element which faces towards the hygroscopic material and a surface (41) of the heat storage element (34, 34') which exchanges moisture with the environment.

36. Method according to one or more of Claims 31 to 35 or in particular according thereto, characterized in that capillary-like holding spaces for holding a paraffin-based latent heat storage material are provided in a solid heat storage element (34, 34').

37. Method according to one or more of Claims 31 to 36 or in particular according thereto, characterized in that a heat storage element (34, 34') is formed from poplar wood.

38. Method according to one or more of Claims 31 to 37 or in particular according thereto, characterized in that the three-dimensional distribution of the microwave radiation intensity is made more uniform by a homogenizing mask (66, 72) which reflects and/or diffracts and/or refracts the microwaves (11, 65, 65').

39. Method according to one or more of Claims 31 to 38 or in particular according thereto, characterized in that the homogenizing mask (66, 72) is disposed in a microwave oven inside and/or outside the heat storage material.

40. Method according to one or more of Claims 31 to 39 or in particular according thereto, characterized in that one or more glass parts (67, 68, 69, 70) are used as homogenizing mask (66, 72).

41. Method according to one or more of Claims 31 to 40 or in particular according thereto, characterized in that the glass part (67, 68, 69, 70) is formed as a sphere, rhombus or pyramid.

42. Method according to one or more of Claims 31 to 41 or in particular according thereto, characterized in that a diverging lens surface is machined into or applied to the glass part (67, 68, 69, 70).

43. Method according to one or more of Claims 31 to 42 or in particular according thereto, characterized in that the glass parts (67, 68, 69, 70) are provided in distributed manner inside the microwave oven.

44. Method according to one or more of Claims 31 to 43 or in particular thereto, characterized in that a homogenizing mask (72) with a metal grid (75) is used.

45. Method according to one or more of Claims 31 to 44 or in particular according thereto, characterized in that the deflection and/or the extinction and/or the diffraction of the microwave beams (11, 65, 65') is influenced by the selection of mesh size and/or wire thickness and/or material composition of the metal grid (75).

46. Method according to one or more of Claims 31 to 45 or in particular thereto, characterized in that a tight-meshed metal grid (75) is introduced between the heat storage material and the microwave radiation source (64), in order to screen the microwave radiation (11, 65, 65') in the principal direction of incidence.

47. Method according to one or more of Claims 31 to 46 or in particular according thereto, characterized in that the temperature distribution within the heat storage material and/or the hygroscopic material (7) and/or between heat storage material and hygroscopic material (7) is made more uniform by a heat-conducting sheet made from material with good thermal conductivity in the transition region between different temperatures.

48. Heat storage device (33, 38, 42, 44) having a solid or liquid heat storage material which on its own cannot be heated by microwave radiation or can be heated to a lesser extent than water, characterized in that the heat storage device (33, 38, 42, 44) contains a hygroscopic material (7) for heat transfer to the heat storage material.

49. Heat storage device with a solid or liquid heat storage material which on its own cannot be heated by microwave radiation (11, 65, 65') or can be heated to a lesser extent than water, characterized in that the heat storage device (47) contains an absorption body (73) with a high dielectric loss index for heat transfer to the heat storage material, and in that the length (L, L') of the absorption body (73) in one direction of extent corresponds to at least half the wavelength of microwave radiation (11, 65, 65') selected for supplying energy.

50. Heat storage device according to Claim 49 or in particular according thereto, characterized in that the absorption body (73) is a glass body (52, 55) and/or contains polyamides and/or aminoplastics and/or PVC-P and/or water.

51. Heat storage device according to one of the two Claims 49 and 50 or in particular according thereto, characterized in that the dielectric loss index is between $10^{-1}$ and $10^{-4}$.

52. Heat storage device according to one or more of Claims 49 to 51 or in particular according thereto, characterized in that the absorption body (73) is provided in the form of a sheet.

53. Heat storage device according to one or more of Claims 49 to 52 or in particular according thereto, characterized in that the absorption body (73) is provided as a film, film packing or bundle of films.

54. Heat storage device according to one or more of Claims 49 to 52 or in particular according thereto,

characterized in that the absorption body (73) surrounds the heat storage material as a sheath.

55. Heat storage device (47) according to one or more of Claims 49 to 54 or in particular according thereto, characterized in that the heat storage material is permeable to microwave radiation (11, 65, 65').

56. Heat storage device (47) according to one or more of Claims 49 to 55 or in particular according thereto, characterized in that a surface of the glass body is formed to be reflective for incident microwave radiation from the interior of the glass body.

57. Heat storage device (47) according to one or more of Claims 49 to 56 or in particular according thereto, characterized in that a surface (55', 55'') of the glass body (55) has a coating (56) with a temperature-dependent transmission coefficient for microwave radiation (11).

58. Heat storage device (47) according to one or more of Claims 49 to 57 or in particular according thereto, characterized in that the three-dimensional distribution of the microwave radiation intensity is made more uniform by a homogenizing mask (66, 72) which reflects and/or diffracts and/or refracts the microwaves (11, 65, 65').

59. Heat storage device (47) according to one or more of Claims 49 to 58 or in particular according thereto, characterized in that the temperature distribution within the heat storage material and/or between the heat storage material and the glass body is made more uniform by a heat-conducting sheet (57) made from a material with good thermal conductivity in the transition region between different temperatures.

60. Heat storage device (47) according to one or more of Claims 49 to 59 or in particular according thereto, characterized in that the homogenizing mask (66, 72) is disposed in a microwave oven inside and/or outside the heat storage material.

61. Heat storage device (47) according to one or more of Claims 49 to 60 or in particular according thereto, characterized in that the homogenizing mask (66, 72) contains one or more glass parts.

62. Heat storage device (47) according to one or more of Claims 49 to 61 or in particular according thereto, characterized in that the glass part (67, 68, 69, 70) is formed as a sphere, rhombus or pyramid.

63. Heat storage device (47) according to one or more of Claims 49 to 62 or in particular according thereto, characterized in that the glass part (67, 68, 69, 70) has a diverging lens surface.

64. Heat storage device (47) according to one or more of Claims 49 to 63 or in particular according thereto, characterized in that the glass parts (67, 68, 69, 70) are provided in distributed manner in the microwave oven.

65. Heat storage device (47) according to one or more of Claims 49 to 63 or in particular according thereto, characterized in that the homogenizing mask (66, 72) contains a metal grid (75).

66. Heat storage device (47) according to one or more of Claims 49 to 63 or in particular according thereto, characterized in that the metal grid (75) is formed to be tight-meshed and is disposed between the heat storage material and the microwave radiation source (64), in order to screen the microwave radiation (11, 65, 65′) in the principal direction of incidence.